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ABSTRACT

A study examined present agricultural education programs in Saint Vincent and made recommendations for needed improvements. Data for the evaluation were obtained from numerous documents and publications, field trips, and discussions with key officials in various ministries and institutions, including the Ministry of Agriculture, Ministry of Education, and various schools, colleges, and associations throughout the country. The agricultural sector is crucial to the economic development of Saint Vincent: it provides about two-thirds of the country's employment and is the country's main source of foreign exchange. However, the country's general population, and farmers in particular, lack adequate knowledge and understanding of the principles of marketing. To meet the need for such information, policymakers at both the ministries of agriculture and education should take steps to improve agricultural education at all levels, with particular attention to teacher training policies and practices. In addition, criteria for admission into diploma programs in agricultural education should be upgraded, existing educational facilities should be updated and expanded, and followup studies should be conducted to assess the success of graduates of agricultural programs. (Appendixes to this report include a listing of documents reviewed by the researcher and data on present staffing and training needs in Saint Vincent.) (MN)

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A report on:

DEVELOPMENT AND STRENGTHENING OF AGRICULTURAL EDUCATION IN ST. VINCENT

(A study conducted during October 1984 at the request of the Caribbean Agricultural Extension Project in Cooperation with the Ministry of Education and the Ministry of Agriculture)

by

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"...the full pay-off on any sort of agricultural education can be realized only when the education is teamed up with a combination of other essential factors and structures for development within the frame of a well-conceived strategy and plan for moving agriculture forward in a particular area."

(p. 242, Attacking Rural Poverty: How Nonformal Education Can Help)

October 26, 1984
Revised 4/2/85

DEVELOPMENT AND STRENGTHENING OF AGRICULTURAL EDUCATION IN ST. VINCENT

Introduction

The consultant was asked to study the present agricultural education programmes in primary, secondary and tertiary schools and to make recommendations for improvement. The observations were made during the period October 22-26, 1984. The following paper contains information about the sources of information, the institutions visited, a summary of observations about the agricultural education programmes, and recommendations for strengthening the programmes. In addition, there is a brief statement about the relationship between agricultural development and education which provides one basis for using the schools as an integral part of the strategy and plans for achieving agricultural development.

Agricultural Development and Education

Achieving food self-reliance and improving the quality of life for rural people are twin goals which have been adopted by many countries. Producing more of what is consumed is a goal of the government in St. Vincent. One of the keys to attainment of the goal is rooted in human resource development. The education

of people is essential for better utilization of modern technology for increasing the productivity in agriculture. Farmers who have primary education are much more likely to adopt improved practices than farmers without primary education. And education is needed for those who work directly with farmers; for those persons in the support services for production, marketing and processing; and for those in position for policy development, planning and supervision.

Human resource development, achieved in part through an effective educational system, is a precursor to economic, social and agricultural development. In other words, a nation must have policies and programmes which provide a strong schooling system which, in turn, provides individuals with the knowledge, skills and attitudes necessary to perform the tasks in industry, commerce, agriculture and government. It is the role of agricultural education to provide the specialized education for persons who find their employment in the agricultural sector, whether on the farm, in the processing, marketing, or agricultural inputs areas; or in government as extension agents, agricultural technicians, planners, administrators or teachers.

Agricultural education programmes at the primary and secondary school levels are usually administered through ministries of education. The programmes are a part of the formal educational system. However, at the same time they are, conceptually, a part of the knowledge-generation and delivery system whose primary mission is to help farmers take fuller advantage of their opportunities. This

"knowledge-generation and delivery system" is not really a system. It has been created in a piece-meal fashion; the parts are under the jurisdiction of different ministries. There is no one locus of responsibility for viewing the "system" as a whole, for planning, for monitoring, or for taking initiatives to improve it.

The postsecondary and higher education programmes of agricultural education are under the ministry of education in some countries and under the ministry of agriculture in other countries. In St. Vincent the postsecondary agricultural education programme is one of several programmes in the St. Vincent Technical College which is under the jurisdiction of the Ministry of Education.

The goals for the agricultural education programmes at the various levels should be clearly stated. Those goals should be consistent with the societal goals expressed through the strategies and plans for both the ministries of education and agriculture. The educational programmes are keys to the development of WILLING AND ABLE workers at all levels of the agricultural sector.

The development of strong and effective agricultural education programmes requires attention not only to goals but to appropriateness of curriculum, teacher education, instructional materials, in-service education for both technical and professional concepts, and inter-ministerial activities between the ministry of education and ministry of agriculture and other related ministries.

Sources of Information

A series of meetings were held with key individuals within both the Ministry of Agriculture and the Ministry of Education. Also, there were observations and discussions at:

1. Arrowroot Industry Association,
2. St. Vincent Banana Grower's Association,
3. Barrouallie Secondary School,
4. Danish Academy,
5. St. Vincent Technical College,
6. Organization for Rural Development,
7. Mariaqua Secondary School.

In addition, much useful information was gained from reading reports and plans such as the following: (See Appendix A for additional details.)

1. "Agricultural Programme 1984-86," Department of Agriculture, St. Vincent and the Grenadines. Agriculture, St. Vincent and the Grenadines.

2. "Profile: Organization for Rural Development", St. Vincent, West Indies.

3. "Educational Institutions in St. Vincent and the Grenadines: Primary Schools, Private Primary Schools and Secondary Schools," Ministry of Education.

4. "An Information Booklet on St. Vincent Arrowroot (Maranta Arundinacea)", Arrowroot Industry Association, 1984.

5. "Information Booklet, September 1983 to July 1984, St. Vincent Technical College.

6. "Training Needs in Agriculture in the Leeward and Windward Islands," by J.E. Edmunds, June 1983.

Observations and Discussions

All requests for interviews and discussions were graciously honored. From the beginning of the brief study period on St. Vincent, it was evident that a genuine concern was present regarding apparent shortcomings and inadequacies in the current agricultural education programmes. It was perceived by various officials that the achievement of the broad policy objectives listed in the "Agricultural Program 1984-86" by the Department of Agriculture would be enhanced by stronger agricultural education programmes at all school levels.

The present and planned future projects of the Organization for Rural Development, very dependent upon nonformal education in agriculture, would be enhanced by stronger agricultural education programmes in the primary and secondary schools.

The key officials in the Ministry of Education clearly indicated priorities for development of agricultural teachers, teachers with appropriate agricultural technology and with dedication to involve parents and other members of the community in the agricultural programmes conducted by the schools. However, there other needs in addition were identifid to the shortage of qualified and dedicated teachers.

The following is a summary of observations regarding the needs for strengthening agricultural education in St. Vincent.

A. Agriculture

1. The agricultural sector is reported to provide for about 2/3rds of the employment and represents about 16 percent of the Gross Domestic Product. The agricultural sector is a major source of foreign exchange; and bananas are the main export crop.
2. A volcano eruption in 1979 caused a loss of approximately 1000 acres of banana trees.
3. The country's total land area of 38,900 hectares (96,122 acres) is reported to be 50% arable, 44% forest, 3% pasture and 3% wasteland and built-on. The greater part of the central highland area is forested and owned by the state.
4. Marketing of agricultural products is a problem for farmers. This is compounded by losses through low quality of some produce and losses through bad practices in post-harvest handling of crops.
5. The general population is reported to lack knowledge and understanding about the marketing system and about the importance of agriculture in the economy.
6. The agricultural communications program initiated by the Ministry of Agriculture is a positive step toward improving the general public's knowledge and understanding of agriculture.
7. There is a goal for strengthening agricultural production through the small landholders.

8. The Ministry of Agriculture actively seeks to cooperate with other Ministries, Agencies, Organizations and private Agri-business for developing and conducting educational programmes.
9. The Ministry of Agriculture is implementing a planned programme with the Ministry of Education to provide small tools, seeds and pesticides to selected schools; and to provide technical assistance to the schools for planning school gardens.
10. The Ministry of Agriculture has set 10 goals for their programmes for the period 1984-86. These include goals related to utilization of land and water resources, increased production and productivity, improved food self-sufficiency, increased earnings of foreign exchange through international markets for agricultural products, and improved quality of life for all Vincentians.
11. The soils and micro-climate conditions throughout the country have been used as a basis to designate eight zones for specialization of production areas for crops/livestock.
12. The Organization for Rural Development (ORD) has programmes, and plans for additional programmes, which may enhance the opportunities for young people to enter and advance in farming. These persons may be graduates from either secondary schools or the St. Vincent Technical College.

13. There is a shortage of qualified, agriculturally trained persons to meet the needs for teachers, extension workers, and other agricultural positions. (See Appendix B.)
14. The academic entrance requirements at the Eastern Caribbean Institute of Agriculture and Forestry (E.C.I.A.F.) have been a handicap to many prospective students from St. Vincent.

B. Education

1. One staff member has been assigned repsonsibility for supervision of the agricultural education programme. He has a background of education in agriculture; has been a successful teacher of agriculture; and has an excellent philosophy about agricultural education and school-community relationships.
2. All government (full) secondary schools plus three non-government schools teach agriculture. Seven government secondary schools have agricultural science programmes.
3. The secondary schools use the Caribbean Examination Council (CXC) recommended curriculum as a guide to instruction in agriculture. Not all schools are prepared to teach the complete curriculum. Most schools are unable to meet the requirements for land, double periods, and in-school assessments.

4. Agriculture is included in the curriculum in all primary schools. Some schools are reported to do very little with the opportunity to teach agriculture. None of the primary schools have formally trained teachers of agriculture.
5. The CXC curriculum in agriculture is not explicitly correlated with the Ministry of Agriculture goals for increasing production and marketing of such crops as onions, garlic, pigeon peas, sweet potatoes, carrots and peanuts.
6. Other problems identified at the primary and secondary school levels were:
   a. There is a shortage of technically trained agricultural teachers for both the primary and secondary schools.
   b. Land, equipment and tools are needed at both the primary and secondary schools. In addition, those which have some land report praedial larceny to be a major problem, due partly to the lack of fencing.
   c. Most schools have difficulty getting seeds and fertilizers. A few schools are quite self sufficient. The agricultural extension service has recently initiated a program to assist the schools through lectures, demonstrations, distribution of plants, etc.
   d. Parents are reported to be negative in their attitudes toward having their children prepare for careers in agriculture especially for farming.

7. One of the schools which was visited appeared to have excellent facilities and equipment; strong administrative support for teaching agriculture; but due to the teacher shortage was relying on Peace Corps Volunteers for the staffing.
8. Some instructional materials, useful for teachers of agriculture, have been prepared by the Arrowroot Industry Association.
9. The Danish school is demonstrating several innovative practices for vocational and general education. The philosophy for the school is expressed through the twin goals of preparing graduates with trade sufficiency (occupational competence) and with a favorable attitude toward group (cooperative) efforts. The land area is sufficient for effective instruction in both crops and livestock with supporting agricultural machinery and equipment. The students are expected to participate in the management of crop and livestock programmes as well as in performing the actual production practices.
10. The teachers college, an institution for preparation of primary school teachers, includes agriculture as a part of the curriculum. The instruction in provided by the agricultural lecturers from the St. Vincent Technical College.
11. The St. Vincent Technical College, administered by the Ministry of Education, has a two-year agricultural science programme.

a. The principal has a strong background in industrial education.

b. A recently completed study of community/national needs in electricity and electronics included information from employees, graduates and non-completers. Currently a study is underway in the occupational areas of business education. The next area scheduled for study is agriculture.

c. The agricultural science programme is the potential source of agriculturally trained persons to enter government service in extension and other agricultural positions; to become secondary school teachers of agriculture; and to enter agricultural positions in the private sector.

d. The agricultural science program has three instructors, all of whom are graduates from the Guyana School of Agriculture.

e. The curriculum includes instruction in soils, crops, vegetables, livestock, machinery and other areas. There is some land available for student practicals in vegetable crops and root crops. The instruction in the area of livestock is limited to lectures and field trips with some students being placed on livestock/dairy farms for experiences.

f. A group interview with 38 students (27 females) enrolled in agriculture resulted in information about their experiences in the programme, their background experiences, occupation goals, and suggestions for improving the programme.

   1) Eleven out of 18 second year students expressed interest in becoming extension workers; two want to become teachers of agriculture in secondary schools; four want to farm; and one had no specific occupational goal.

   2) Students expressed desires to change the programme by including livestock practicals; a science lab; more field trips; opportunity to learn to use modern agricultural tools, equipment and machinery; and additional experience through living and working with farmers.

g. The St. Vincent Technical College has an advisory committee. There is one member designated to come from, and to represent, the agricultural sector.

h. The usual procedure for admission of students into the agricultural science programme includes interviews and recommendations by one or more of the teachers of agriculture.

Recommendations

The further development of agriculture--the desired increases in production, improved quality, improved marketing--is dependent upon several factors, one of which is strengthening the agricultural education programmes. The desired increases in production are partially dependent upon helping farmers have access to appropriate and timely technology. The quality of the staff in the Department of Agriculture, for planning and implementing various programmes, will be a major factor in the effectiveness of farmer education. The frontline extension workers positions should be filled with willing and able agriculturalists. There is evidence that much has been done in recent years to strengthen the extension programme. However, a key to continued success for all agricultural programmes is the presence of qualified professional workers in all of the positions.

The agricultural education programmes, through the Ministry of Education, at all three levels (primary, secondary and tertiary) are an important link in agricultural development. However, the agricultural education programmes cannot reach the desired level of performance without an effective and efficient basic educational programme to serve the children and youth of the nation.

The following recommendations are based on the assumption that vigorous efforts will be continued to strengthen the entire educational system so as to provide the development of the human resources of St. Vincent. The recommendations are divided into two main parts: Ministry of Education and Ministry of Agriculture.

Ministry of Education. The efforts being made to strengthen the primary and secondary schools are vital to the future development of the nation. The availability of high quality education is vital to human resource development in order to achieve the goals of society and of individuals. The efforts to concurrently strengthen agricultural education at all levels (primary, secondary and tertiary) are especially important because of (a) the importance of agriculture to the economy and employment in St. Vincent, and (b) the national and regional shortage of appropriately prepared agriculturalists.

1. A top priority should be the preparation of teachers of agriculture for the Technical College and for secondary and primary schools.
    a. The curriculum for preparation of new teachers should include a solid technical preparation plus professional preparation so as to use appropriate methodology for teaching students and involving the community.
    b. In-service programmes for present teachers should include agricultural technology (theory and practice); course planning; developing the instructional calendar; supervision of students in projects at school and at home; and developing/using instructional materials.

2. The specialist for agricultural education in the Ministry of Education should have at least a graduate (B.Sc.) degree in agricultural education.
3. The CXC Syllabus for agriculture should be reviewed with teachers in cooperation with representatives from the Ministry of Agriculture to give emphasis to crops and livestock qwhich are to be promoted in St. Vincent in the various zones; and to incorporate instruction in farm management, record keeping, marketing, leadership and cooperation.
4. St. Vincent Technical College which provides the necessary administrative organizations and supporting course areas, should give a high priority to strengthening the technical agriculture programme.
   a. The Advisory Committee of the College should include representation and active participation from the agricultural sector. In addition, an ad hoc agricultural curriculum committee should be established to offer advice on the curriculum, courses, equipment and use of resources from other organizations. The ad hoc curriculum committee should include representatives from the Ministry of Agriculture, farmers, organizations such as the Arrowroot Association and ORD (potential employers of graduates).
   b. The objectives of the agricultural programmes should be clearly stated both in general terms and

then in terms of what the graduates are expected to be able to do. The general objectives should include the preparation of persons willing and able to enter positions such as agricultural extension, teachers of agriculture, technicians in agro-industries and farming.

c. The criteria for admission into the diploma programme should be upgraded as rapidly as possible, to include three "0" level passes (English, Science and Mathematics) and interest in a career in agriculture. Exceptions should be allowed in order to permit experienced persons to enter for upgrading their qualifications.

d. The proposed follow-up study of former graduates, their employers, and leavers (without completion) should be conducted in the immediate future as one major source of information for strengthening the programme.

e. The present facilities and equipment should be expanded and upgraded to facilitate the teaching of appropriate science courses and to provide students opportunities for "hands on" experiences with modern equipment.

f. The drainage problems at the present site need to be solved and additional land (now available) should be used to expand student practice. Students should get more "doing experience" instead of merely observing.

g. Practical experiences in animal husbandry should be added.

h. The agricultural science programme should be upgraded to the level of a diploma accredited programme as quickly as possible.

i. The lecturers for the programme should have graduate (B.Sc.) degrees as a minimum qualification.

j. The annual intake of students should be 15-20.

k. When the facilities and equipment have been improved, the programme should be expanded to include seminars, workshops and short courses to serve persons already employed in agricultural positions.

5. The secondary schools are the appropriate level for teaching vocational agriculture. The instruction and facilities at the secondary schools should result in an impact on the agricultural practices in the community, and the entrance of young people into agricultural careers. This requires preparation of teachers of agriculture; an in-service program to keep

the teachers up-to-date; assistance in developing and using instructional materials; and appropriate facilities and equipment.

a. The number one priority among the recommendations is the preparation of qualified teachers.

b. The CXC standard for land, facilities, and equipment is an appropriate standard. However, it is strongly recommended that the methods of teaching be centered around problem solving, supervised occupational experiences (projects at home and at school) and leadership development for the students.

c. The schools should have at least minimum equipment for use by students and fencing for the security of student projects on school land. In addition, there must be a secure space for storage of tools, fertilizers, insecticides, etc.

d. There should be an emphasis on involving the community in the agricultural programmes. It is recommended that the school facilities and equipment be utilized in cooperation with the agricultural extension programme for farmer education; and in cooperation with whichever agency is responsible for adult literacy programmes.

e. There should be a planned programme to involve teachers in the development of instructional materials.

6. The primary schools should provide agricultural education as part of the basic education for all children. Three kinds of objectives for agricultural education in primary schools are: (1) as a part of basic education for teaching science using the local plants, soils and animals; (2) as a separate subject to develop positive attitudes towards agriculture; and (3) as a means of improving the nutrition of the children and their families.

   a. Each primary school should have at least one teacher with qualifications in agriculture.

   b. School gardens should be used for (1) helping students learn scientific principles, (2) developing positive attitudes toward agriculture and (3) demonstrating the appropriate kinds and varieties of vegetables to provide nutritious meals for families. (The focus should be on the students, their learning, instead of on the plants, the "beautiful garden", etc.).

   c. An in-service programme should be developed for helping other teachers (in addition to the agricultural teacher) incorporate into their teaching concepts from the science of agriculture and about the importance of agriculture in the nation into their teaching.

d. The primary school teachers of agriculture should be involved in the development of instructional materials.

Ministry of Agriculture. The efforts being made to promote and enhance agricultural education should be continued. The Ministry of Agriculture has a special role in helping strengthen agricultural education through appropriate technology and through keeping other agencies and organizations aware of the trends and plans for agricultural development.

1. The support to the school programmes through technical advice, seeds, plants, assistance with securing fertilizers, fencing, etc. should be continued.
2. The technical assistance to the schools should be focused on teachers so as to maximize the return to the efforts of the extension workers.
3. The bulletins, posters and other educational materials prepared by the MOA should be made available (through the Ministry of Education) for distribution to teachers in the schools.
4. The concept of zonal production for various crops should be incorporated into modifications of the school curriculum and courses in secondary schools. For example, the crops which are being promoted in District I should be a part of the instructional programme for the teachers of agriculture in schools located in District I.

5. The Ministry of Education should be invited to send teachers of agriculture to participate in seminars and workshops sponsored by the Ministry of Agriculture. This will provide opportunities for agricultural teachers to learn new technology and improve practices for keeping up-to-date.

Implementation

The limited resources available and the priorites of external funding agencies should be carefully considered when setting priorities for strengthening the agricultural education programme. However, a systematic plan should be developed which clearly identifies the priorities of St. Vincent. Then external sources of funds, for assistance in strengthening the agricultural education programme, should be sought.

1. Scholarships should be made available to provide up-grading of key personnel for agricultural education to the graduate (B.Sc.) degree.
   a. Three scholarships for the St. Vincent Technical College.
   b. One scholarship for the Ministry of Education.
2. Consultant services to assist in replanning the curriculum courses, and course calendar in conjunction with appropriate crop, vegetable and animal husbandry practicals for the students.

3. Funding for development of facilities and equipment to support the revised curriculum, courses and teaching methodology.
4. Consultant services to help plan and conduct an in-service programme for:
   a. Teachers of agriculture in secondary and primary schools.
   b. Other primary school teachers. (Community resources in teaching--3 week workshop.
5. Establish pilot schools, one or two at the secondary level and at least four at the primary level, for strengthening the programmes and subsequent use for training teachers from other schools.
6. Request the Caribbean Agricultural Extension Project to sponsor a regional workshop on technical education in agriculture. This workshop should include administrators and instructors for the purpose of replanning the programmes to best fit the needs of each country.

APPENDIX A

List of Titles of Documents and Other Materials Reviewed by the Consultant

1. "Agricultural Programme 1984-1986," Department of Agriculture, St. Vincent and the Grenadines, 10 pp. + 2 appendices (2 pp.), mimeographed.

2. "Training Needs in Agriculture in the Leeward and Windward Islands" by J.E. Edmunds. A report to the CIDA/Canada Training Awards Project Coordinator, June 1983, 53 pp. + appendix (7 pp.).

3. Trained Manpower Needs in the Agricultural Sector Leeward and Windward Islands by T.H. Henderson. The University of the West Indies, Department of Agricultural Extension, St. Augustine, Trinidad, 1976, 59 pp.

4. "Genuine St. Vincent Arrowroot Uses" by Frederick Ollivierre, Arrowroot Industry Association, 1984, 5 pp.

5. "An Information Booklet on St. Vincent Arrowroot (Maranta Arundinacea)" by Frederick Ollivierre, 1984, 47 pp.

6. "St. Vincent Technical College Information Booklet," September 1983, 13 pp.

7. Attacking Rural Poverty: How Nonformal Education Can Help by Philip H. Coombs with Manzoor Ahmed. A World Bank Publication by the Johns Hopkins University Press, Baltimore, 1974, 292 pp.

APPENDIX B

Present Staffing and Training Needs in St. Vincent:
A Comparison of Two Studies...1974-75 and 1983

Henderson Study...Data Collected December 1974-April 1975		Edmunds Study...Data Collected February-May, 1983	
Present Staff Resources:		Staff in Post:	
Graduate	8	9	Graduate
Intermediate	17	1	Local Trained
Untrained	47	44	Overseas Trained
Vacancies:		Vacancies:	
Graduate	5	3	Graduate
Intermediate	8	-	Intermedite
Additional 10-Year Needs:		Staff in Training:	
Graduate	4	3	Graduate
Intermediate	32	14	Intermediate
Projected Total 10-Yr. Needs:		Projected 3-Yr. Training Needs:	
Graduate	8	13	Graduate
Intermediate	60	27	Intermedite

Comments:

During the interval of 8-9 years between the studies there was considerable upgrading of the staff in post; there are still vacancies; and the projected needs on a per-year basis, were greater at the time of the Edmunds study than at the time of the Henderson study.